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09/966,038	09/28/2001	Erwin B. Bellers	US010583	4573

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EXAMINER

TRAN, TRANG U

ART UNIT PAPER NUMBER

2622

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,038

Applicant(s)

BELLERS, ERWIN B.

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-9,11,13-16,18 and 20 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 10, 12, 17 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed Feb. 27, 2006 have been fully considered but they are not persuasive.

In re pages 2-6, applicant argues that claims 1, 8, and 15 should be allowable over Cherry because the claimed sampling the input signal using a variable sampling rate, as determined by an analysis unit coupled to the sampling mechanism output to determine the highest spatial frequency, is nowhere taught or suggested in Cherry.

In response, the examiner respectfully disagrees. Cherry et al discloses in col. 4, lines 35-39 that

"The pulse frequency of 6·10 per second, that is a pulse interval of 1/6 microsecond, is thus chosen **as the constant signal sampling rate of the analogue-to-digital converter 2**. In the present example, the picture samples are a succession of binary numbers, identifying the amplitudes thereof" and

in col. 5, lines 8-15 that

"The function of the supply rate selector 4 is to limit the many possible resultant sample supply rates to **the three rates chosen for the system, that is the high-detail rate at the Nyquist interval t of 1/6 microsecond, the medium rate at intervals $3t$ and the slow rate at intervals $9t$** . The supply rate selector 4 supplies an output control pulse to the supply gate 16 when a signal sample is required."

From the above passages, it is clear that the inputted video signal is sampled by the analogue-to-digital converter 2 at a constant rate **and the sampled video signal outputted from the analogue-to-digital converter 2 is again sampled at three different rates, the Nyquist interval t , the medium rate at intervals $3t$, and the slow rate at intervals $9t$ by the supply gate 16.**

It is noted that independent claim 8 recites

sampling the analog video signal utilizing a variable sampling rate modulated for segments of the analog video signal based upon spatial frequencies within the image content contained within the analog video signal; determining a highest spatial frequency within the image content; and selecting the variable sampling rate over a continuous range as a function of the highest spatial frequency within the image content.

The claimed sampling the analog video signal utilizing a variable sampling rate of claim 8 is anticipated by the supply gate 16 of Cherry et al because the output of the supply gate 16 of Cherry et al has three different rates, at the Nyquist interval t of $1/6$ microsecond, at intervals $3t$, and at intervals $9t$.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 15-16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipate by E. C. Cherry et al. (US Patent No. 3,324,237).

In considering claim 15, E. C. Cherry et al discloses all the claimed subject matter, note 1) the claimed an input receiving an analog video signal is met by the picture scanner 1 (Fig. 1, col. 4, lines 3-19), and 2) the claimed a sampling the analog video signal utilizing variable sampling rate modulated for segments of the analog video signal based upon spatial frequencies within the image content contained within the analog video signal is met by the analog-to-digital converter 2, the detail detector 3 which supplies a two-level (high or low detail information) output signal, a supply rate

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selector 4 which selects variable sampling rate for the supply-rate coder 5 based upon spatial frequencies within the image content (high or low detail information) (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 13 to 12, line 50), 3) the claimed determining a highest spatial frequency within the image content is met by the detail detector 3 which supplies a two-level (high or low detail information) output signal, a supply rate selector 4 which selects variable sampling rate for the supply-rate coder 5 based upon spatial frequencies within the image content (high or low detail information) (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 13 to 12, line 50), and 4) the claimed selecting the variable sampling rate over a continuous range as a function of a highest spatial frequency within the image content is met by the supply rate selector 4 which selects variable sampling rate for the supply-rate coder 5 based upon spatial frequencies within the image content (high or low detail information) (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 13 to 12, line 50).

In considering claim 16, the claimed wherein first sampling rate is employed for a first segment of the analog video signal containing content having a first highest spatial frequency and a second sampling rate greater than the first sampling rate employed segment of the analog video signal containing content having a second highest spatial frequency greater than the first highest spatial frequency is met by the supply rate selector 4 which selects for the low-detail condition, a lower supply rate is chosen, for the high-detail condition (frequency greater than the low-detail), the highest supply rate is chosen, corresponding to the Nyquist sampling interval of 1/6 microsecond (Fig. 1, col. 4, line 20 to col. 5, line 65).

In considering claim 18, E. C. Cherry et al discloses all the claimed subject matter, note 1) the claimed further comprising receiving the analog video signal at a single analog-to-digital converter sampling the analog video signal at a fixed rate is met by the signal sampler and analogue-to-digital converter 1 (Figs. 1 and 3, col. 8, lines 13-48), 2) the claimed analyzing samples from the converter to select sampling rate for each segment of the analog video signal is met by the detail detector 3 and the supply rate selector 4 which selects for the low-detail condition, a lower supply rate is chosen, for the high-detail condition (frequency greater than the low-detail), the highest supply rate is chosen, corresponding to the Nyquist sampling interval of 1/6 microsecond (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 52 to col. 12, line 49), and 3) the claimed retaining samples from the converter for each segment of the analog video signal based upon corresponding selected sampling rate by the signal analysis unit is met by the supply rate coder 5 (Fig. 1, col. 12, lines 53-75).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4, 6-9, 11, 13-14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over E. C. Cherry et al. (US Patent No. 3,324,237).

In considering of claim 1, E.C. Cherry et al discloses all the claimed subject matter, note 1) the claimed an input receiving an analog video signal is met by the

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picture scanner 1 (Fig. 1, col. 4, lines 3-19), 2) the claimed a sampling mechanism coupled to the input and sampling the analog video signal utilizing sampling rate modulated for segments of the analog video signal is met by the analog-to-digital converter 2 (Fig. 1, col. 4, lines 20-39), and 3) the claimed an output of said sampling mechanism being coupled to a signal analysis unit to determine a highest spatial frequency within the image content is met by the supply rate selector 4 (fig. 1, col. 4, line 73 to col. 5, line 3).

However, E.C. Cherry does not specifically disclose that the sampling mechanism samples the analog video signal utilizing a variable sampling rate modulated for segments of the analog video signal based upon spatial frequencies within the image content contained within the analog video signal and that the variable sampling rate being selectable over a continuous range as a function of the highest spatial frequency within the image content.

E.C. Cherry also discloses in col. 4, lines 40-50 that

"However, not all of the picture samples, following one another, continuously at the Nyquist interval are required during periods of low picture detail and not all the samples generated are transmitted through the system, therefore.

A small number of successively slower sample rates of transmission are provided for choice when picture detail is correspondingly lower. In the present system, two alternative slower pulse rates are provided, respectively of $1/3$ and $1/9$ the sampling rate of the analogue-to-digital converter 2, corresponding to pulse intervals of $1/2$ microsecond and $1 1/2$ microseconds, respectively."

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the two alternative slower pulse rates of $1/3$ and $1/9$ the sampling rate of the analogue-to-digital converter 2 into Fig. 1 of E.C. Cherry in order to

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reduce size and cost of the system of E.C. Cherry by eliminating the supply rate selector 4 and supply gate 16 of Fig. 1 of E.C. Cherry.

In considering claim 2, the claimed wherein first sampling rate is employed for a first segment of the analog video signal containing content having a first highest spatial frequency and a second sampling rate greater than the first sampling rate employed segment of the analog video signal containing content having a second highest spatial frequency greater than the first highest spatial frequency is met by the supply rate selector 4 which selects for the low-detail condition, a lower supply rate is chosen, for the high-detail condition (frequency greater than the low-detail), the highest supply rate is chosen, corresponding to the Nyquist sampling interval of 1/6 microsecond (Fig. 1, col. 4, line 20 to col. 5, line 65 of E.C. Cherry et al).

In considering claim 4, E. C. Cherry et al discloses all the claimed subject matter, note 1) the claimed wherein the sampling mechanism further comprises: a single analog-to-digital converter receiving the analog video signal and sampling the analog video signal at a fixed rate is met by the signal sampler and analogue-to-digital converter 1 (Figs. 1 and 3, col. 8, lines 13-48), 2) the claimed signal analysis unit analyzing samples from the converter to select sampling rate for and each segment of the analog video signal is met by the detail detector 3 and the supply rate selector 4 which selects for the low-detail condition, a lower supply rate is chosen, for the high-detail condition (frequency greater than the low-detail), the highest supply rate is chosen, corresponding to the Nyquist sampling interval of 1/6 microsecond (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 52 to col. 12, line 49), and 3) the claimed a

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downsampling unit retaining samples from the converter for each segment of the analog video signal based upon corresponding sampling rate selected by the signal analysis unit is met by the supply rate coder 5 (Fig. 1, col. 12, lines 53-75).

In considering claim 6, E. C. Cherry et al disclose all the limitations of the instant invention as discussed in claims 1 and 2, except for providing the claimed wherein the rate for each segment of the analog video signal sampling is at least twice a highest spatial frequency within content contained by the corresponding segment of the analog video signal. The capability of selecting the rate for each segment of the analog video signal sampling is at least twice a highest spatial frequency within content contained by the corresponding segment of the analog video signal is old and well known in the art. Therefore, the Official Notice is taken. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known of selecting the rate for each segment of the analog video signal sampling is at least twice a highest spatial frequency within content contained by the corresponding segment of the analog video signal into E. C. Cherry et al's system in order to increase the quality of the video signal because sampling the video signal using at least twice a highest spatial frequency will reduce interference.

In considering claim 7, the claimed wherein the sampling mechanism samples the analog video signal at a first rate and transmits samples for at least one segment of the analog video signal at second rate different than the first rate is met by the signal sampler and analogue-to-digital converter 1 which samples the analog signal at a first rate and the supply rate coder 5 which transmits samples for at least one segment at

second rate different than the first rate (Figs. 1 and 3, col. 8, lines 13-48 and col. 12, lines 53-75 of E. C. Cherry et al).

In considering claim 8, E. C. Cherry et al discloses all the claimed subject matter, note 1) the claimed an input receiving an analog video signal is met by is met by the picture scanner 1 (Fig. 1, col. 4, lines 3-19), 2) the claimed an output transmitting digital video signal to a display, a storage system, or another device is met by is met by the picture sample store 6 and 8 (Fig. 1, col. 13, line 5, line 66 to col. 7, line 10 and col. 13, line 23 to col. 14, line 37), and 3) the claimed a sampling mechanism coupled to the input and sampling the analog video signal utilizing a variable sampling rate modulated for segments of the analog video signal based upon spatial frequencies within the image content contained within the analog video signal, said variable sampling rate being selectable over a continuous range as a function of a highest spatial frequency within the image content is met by the analog-to-digital converter 2, the detail detector 3 which supplies a two-level (high or low detail information) output signal, a supply rate selector 4 which selects variable sampling rate for the supply-rate coder 5 based upon spatial frequencies within the image content (high or low detail information) (Fig. 1, col. 4, line 20 to col. 5, line 65 and col. 8, line 13 to 12, line 50).

However, E.C. Cherry does not specifically disclose that the sampling mechanism samples the analog video signal utilizing a sampling rate modulated for segments of the analog video signal based upon spatial frequencies within the image content contained within the analog video signal and that the variable sampling rate

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being selectable over a continuous range as a function of the highest spatial frequency within the image content.

E.C. Cherry also discloses in col. 4, lines 40-50 that

"However, not all of the picture samples, following one another, continuously at the Nyquist interval are required during periods of low picture detail and not all the samples generated are transmitted through the system, therefore.

A small number of successively slower sample rates of transmission are provided for choice when picture detail is correspondingly lower. In the present system, two alternative slower pulse rates are provided, respectively of $1/3$ and $1/9$ the sampling rate of the analogue-to-digital converter 2, corresponding to pulse intervals of $1/2$ microsecond and $1 1/2$ microseconds, respectively."

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the two alternative slower pulse rates of $1/3$ and $1/9$ the sampling rate of the analogue-to-digital converter 2 into Fig. 1 of E.C. Cherry in order to reduce size and cost of the system of E.C. Cherry by eliminating the supply rate selector 4 and supply gate 16 of Fig. 1 of E.C. Cherry et al.

Claim 9 is rejected for the same reason as discussed in claim 2.

Claim 11 is rejected for the same reason as discussed in claim 4.

Claim 13 is rejected for the same reason as discussed in claim 6.

Claim 14 is rejected for the same reason as discussed in claim 7.

Claim 20 is rejected for the same reason as discussed in claim 6.

Allowable Subject Matter

6. Claims 3, 5, 10, 12, 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The dependent claims 3, 10 and 17 identifies the uniquely distinct features: "a plurality of analog-to-digital converters each coupled to one of the plurality of analog filters and having settings based upon the corresponding analog filter, each analog-to-digital converter sampling an output of the corresponding analog filter; and combination logic selecting the output of one of the analog-to-digital converters for each segment of the analog video signal and combining the selected outputs". The closest prior art, E. C. Cherry et al. (US Patent No. 3,324,237), either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

The dependent claims 5, 12 and 19 identifies the uniquely distinct features: "wherein the sampling mechanism further comprises: a second analog-to-digital converter receiving the analog video signal and sampling the analog video signal at a variable rate; and a signal analysis unit analyzing samples from the first converter to select a sampling rate for each segment the analog video signal and adjusting the sampling rate of the second converter". The closest prior art, E. C. Cherry et al. (US Patent No. 3,324,237), either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
May 12, 2006

A handwritten signature in black ink, appearing to read 'Trang U. Tran', with a long, sweeping horizontal stroke extending to the right.

Trang U. Tran
Examiner
Art Unit 2622